



# Smart Licensing Using Policy for Cisco Nexus Dashboard Fabric Controller

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## Introduction

Note: The documentation set for this product strives to use bias-free language. For this documentation set, bias-free is defined as language that does not imply discrimination based on age, disability, gender, racial identity, ethnic identity, sexual orientation, socioeconomic status, and intersectionality. Exceptions may be present in the documentation due to language that is hardcoded in the user interfaces of the product software, language used based on RFP documentation or language that is used by a referenced third-party product.

## Introduction

Smart Licensing Using Policy (SLP) is an enhanced version of Smart Licensing, with the overarching objective of providing a licensing solution that does not interrupt the operations of your network and enabling a compliance relationship to account for the hardware and software licenses you purchase and use.

Note: SLP is supported starting with Cisco Nexus Dashboard Fabric Controller, Release 12.0.1a.

The primary benefits of this enhanced licensing model are:

- Seamless day-0 operations

After a license is ordered, product features can be configured on the device right away.

- Consistency in Cisco NX-OS

Devices that run Cisco NX-OS software have uniform licensing experience.

- Visibility and manageability

Tools, telemetry, and product tagging to know what is in use.

- Flexible time series reporting to remain compliant

Easy reporting options are available, whether you are directly or indirectly connected to Cisco Smart Software Manager (CSSM) or in an air-gapped network.

Note: This document provides conceptual, configuration, and troubleshooting information for SLP on Cisco Fabric Controller. For a more detailed overview on Cisco Licensing, go to [cisco.com/go/licensingguide](https://cisco.com/go/licensingguide).

The conceptual information includes an overview of SLP, supported products, supported topology, and explains how SLP interacts with other features. SLP is a software license management solution that provides a seamless experience with the following aspects of licensing:

- Smart Licensing Using Policy is a software license management solution that provides a seamless experience with the various aspects of licensing.

- Purchase licenses: Purchase licenses through the existing channels and use the Cisco Smart Software Manager (CSSM) portal to view product instances and licenses.

Note: To simplify your implementation of Smart Licensing Using Policy, provide your Smart Account and Virtual Account information when placing an order for new hardware or software. This allows Cisco to install applicable policies and authorization codes (terms explained in the Concepts section), at the time of manufacturing.

- Use: All licenses on Cisco Nexus Switches are unenforced. This means that you do not have to complete any licensing-specific operations, such as registering or generating keys before you start using the software and the licenses that are tied to it. License usage is recorded on your device with timestamps and the required workflows can be completed later.

- Report license usage to CSSM: You can use the licenses directly or via a proxy.
- Reconcile: For situations where delta billing applies (purchased versus consumed).

## Architecture

This section explains the various components that can be part of your implementation of the Smart Licensing Using Policy.

## Product Instance

A product instance is a single instance of a Cisco product, identified by a Unique Device Identifier (UDI).

A product instance records and reports license usage (RUM reports) and provides alerts and system messages about issues such as overdue reports and communication failures. RUM reports and usage data are securely stored in the product instance.

Throughout this document, the term product instance refers to all supported physical and virtual product instances, unless noted otherwise. For information about the product instances that are within the scope of this document, see Supported Products.

## CSSM

Cisco Smart Software Manager (CSSM) is a portal that enables you to manage all your Cisco software licenses from a centralized location. CSSM helps you manage current requirements and review usage trends to plan for future license requirements.

You can access the CSSM Web UI at <https://software.cisco.com>. Under the License tab, click the Smart Software Licensing link. See [Configuring SLP](#) to know about the different ways in which you can connect to CSSM.

In CSSM you can:

- Create, manage, or view virtual accounts.
- Create and manage Product Instance Registration Tokens.
- Transfer licenses between virtual accounts or view licenses.
- Transfer, remove or view product instances.
- Run reports against your virtual accounts.
- Modify your email notification settings.
- View overall account information.

## Guidelines and Limitations

The SLP feature has the following guidelines and limitations:

- CSLU-initiated communication/pull mode is not supported in Cisco NX-OS Release 10.2(1).

## Concepts

This section explains the key concepts of Smart Licensing Using Policy.

### License Enforcement Types

The only enforcement type supported on Cisco Nexus Dashboard Fabric Controller is Unenforced or Not Enforced. Unenforced licenses do not require authorization before use in air-gapped networks or connected networks. The terms of use for such licenses are as per the end-user license agreement (EULA).

Note: Enforced and Export licenses are not supported on Cisco Nexus Dashboard Fabric Controller.

### License Duration

This refers to the duration or term for which a purchased license is valid. A given license may belong to any one of the enforcement types mentioned above and be valid for the following durations:

- Perpetual: There is no expiration date for such a license.

Network Services and LAN Enterprise licenses are examples of perpetual licenses that are available on Cisco Nexus Switches.

- Subscription: The license is valid only until a certain date.

MacSec and NX-OS Advantage licenses are examples of perpetual licenses that are available on Cisco Nexus Switches.

### Policy

A policy provides the product instance with these reporting instructions:

- First report requirement (days): The first report must be sent within the duration specified here.
- Reporting frequency (days): The subsequent report must be sent within the duration specified here.
- Report on change (days): In case of a change in license usage, a report must be sent within the duration specified here.

### Understanding Policy Selection

CSSM determines the policy that is applied to a product instance. Only one policy is in use at a given point in time. The policy and its values are based on several factors, including the licenses being used.

Only the Default Policy is supported in Cisco Nexus Dashboard Fabric Controller. The default policy has an initial minimal reporting requirement of:

- Initially within the first 90 days, and
- within 365 days of last report for subsequent reports.

While you cannot configure a policy, you can request a customized policy by contacting the Cisco Global Licensing Operations team. Go to Support Case Manager. Click OPEN NEW CASE > Select Software Licensing. The licensing team

## Supported Topologies

will contact you to start the process or for any additional information. Customized policies are also made available through your Smart account in CSSM.

## Trust Code

A trust code is UDI-tied public key with which the product instance signs every RUM report. This prevents tampering and ensures data authenticity.

## Supported Topologies

This section describes the various ways in which you can implement Smart Licensing Using Policy. For each topology, refer to the accompanying overview to know how the set-up is designed to work, and refer to the considerations and recommendations if any.

If you are migrating from an existing licensing model, see [Migrating to Smart Licensing Using Policy](#).

If you want to perform any additional configuration tasks, for instance, if you want to configure a different license, or use an add-on license, or if you want to configure a narrower reporting interval, see the [Task Library for Smart Licensing Using Policy](#).

## Connected Directly to CSSM

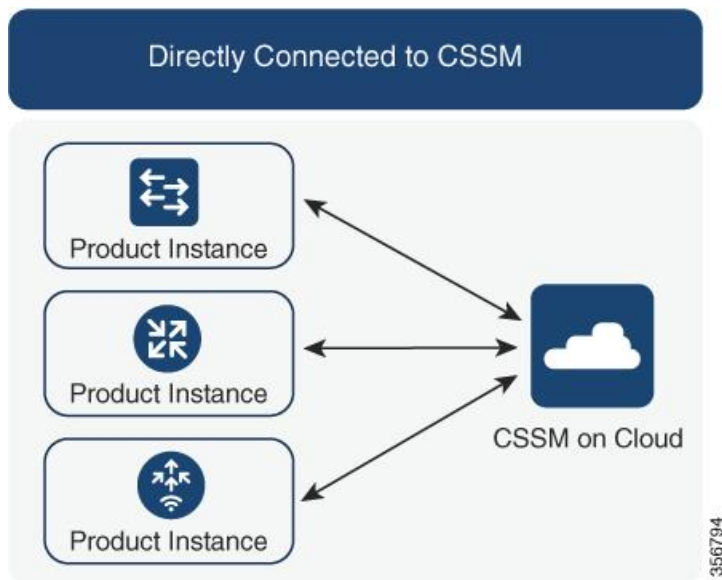
This topology is available in the earlier version of Smart Licensing and continues to be supported with SLP.

Here, you establish a direct and trusted connection from a product instance to CSSM. The direct connection requires network reachability to CSSM. To exchange messages and communicate with CSSM, configure one of the transport options available with this topology (described below). Lastly, the establishment of trust requires the generation of a token from the corresponding Smart Account and Virtual Account in CSSM, and installation on the product instance.

You can configure a product instance to communicate with CSSM. Use Smart transport to communicate with CSSM. Smart transport is a transport method where a Smart Licensing (JSON) message is contained within an HTTPs message, and exchanged between a product instance and CSSM, to communicate. The following Smart transport configuration options are available:

- Smart transport: In this method, a product instance uses a specific Smart transport licensing server URL. This must be configured exactly as shown in the workflow section.
- Smart transport through an HTTPs proxy: In this method, a product instance uses a proxy server to communicate with the licensing server, and eventually, CSSM.

*Figure 1. Topology: Connected Directly to CSSM*



## Considerations or Recommendations

Smart transport is the recommended transport method when directly connecting to CSSM. This recommendation applies to:

- New deployments.
- Earlier licensing models. Change configuration after migration to SLP.
- Registered licenses that currently use the Call Home transport method. Change configuration after migration to SLP.
- Evaluation or expired licenses in an earlier licensing model. Change configuration after migration to SLP.

To change configuration after migration, see [Connected Directly to CSSM > Product Instance Configuration > Configure](#).

To implement this topology, see [Connected Directly to CSSM](#).

## Supported Products

- The family of products that support Smart Licensing are supported with Smart Licensing Using Policy. Cisco Nexus Dashboard Fabric Controller also supports devices that have Smart Licensing using Policy.
- From Cisco Nexus Dashboard Fabric Controller Release 12.1.1e, Smart Licensing using Policy is supported on MDS switches.

## Interactions with Other Features

### Upgrades

This section describes how upgrade or migration to SLP is handled. It also clarifies how SLP handles all earlier licensing models, and how evaluation or expired licenses from any of the earlier licensing models are handled in the SLP environment.

After Smart Licensing is registered, you must manually assign licenses to the existing switches. For all switches discovered after establishing trust, smart licenses are automatically assigned to the switches.

### Identifying the Current Licensing Model Before Upgrade

Before you upgrade to SLP, if you want to know the current licensing model that is effective on the product instance, navigate to Operations > License Management on the Cisco Nexus Dashboard Fabric Controller.

### How an Upgrade Affects Enforcement Types for Existing Licenses

An unenforced license that was being used before the upgrade, continues to be available after the upgrade. All licenses on Cisco Nexus Switches are unenforced licenses. This includes licenses from the earlier licensing models as follows:

- Traditional Licensing (PAK)
- Smart Licensing
- Right-to-Use (RTU) Licensing
- Evaluation or expired licenses from any of the above-mentioned licensing models

### How an Upgrade Affects Reporting for Existing Licenses

When you upgrade to a software version that supports SLP, reporting is based on the reporting requirements in the policy which can be displayed in the output of the show license status command for the following licenses:

- Traditional Licenses (PAK)
- Smart Licenses (Registered and Authorized licenses)
- Right-to-Use (RTU) Licenses
- Evaluation or expired licenses

### How an Upgrade Affects Transport Type for Existing Licenses

The transport type, if configured in your existing setup, is retained after upgrading to SLP.

When compared to the earlier version of Smart Licensing, additional transport types are available with SLP. There is also a change in the default transport mode.



## Configuring Smart Licensing Using Policy

This section provides the simplest and fastest way to implement a topology.

Note: These workflows are meant for new deployments only. If you are migrating from an existing licensing model, see [Migrating to Smart Licensing Using Policy](#).

### Connected Directly to CSSM

Smart Account Set-Up → **Product Instance Configuration** → **Trust Establishment with CSSM**

#### 1. Smart Account Set-Up

Where task is performed: CSSM Web UI, <https://software.cisco.com/>.

Ensure that you have a user role with proper access rights to a Smart Account and the required Virtual Accounts.

#### 2. Product Instance Configuration

Where tasks are performed: Product Instance

Refer to Cisco Nexus Dashboard Fabric Controller Configuration Guide, License Management chapter for more information.

### Connected to CSSM using Proxy

Smart Account Set-Up → **Product Instance Configuration** → **Trust Establishment with CSSM**

#### 1. Smart Account Set-Up

Where task is performed: CSSM Web UI, <https://software.cisco.com/>.

Ensure that you have a user role with proper access rights to a Smart Account and the required Virtual Accounts.

#### 2. Product Instance Configuration

Where tasks are performed: Product Instance

Refer to Cisco Nexus Dashboard Fabric Controller Configuration Guide, License Management chapter for more information.

## Migrating to Smart Licensing using Policy

To upgrade to SLP, you must upgrade the software version (image) on the product instance to a supported version.

### Before you Begin

- Ensure that you have read the Upgrades section, to understand how SLP handles various aspects of all earlier licensing models.

## Smart Licensing to Smart Licensing Using Policy

To migrate from Smart Licensing to Smart Licensing using Policy, launch Cisco Nexus Dashboard Fabric Controller. On the Web UI, choose Operations > License Management > Smart tab. Establish trust with CCSM using SLP. Refer to License Management chapter in Cisco Nexus Dashboard Fabric Controller Configuration Guide for more information.

## The CSSM Web UI After Migration

Log in to the CSSM Web UI at <https://software.cisco.com> and click Smart Software Licensing. Under Inventory > Product Instances.

Registered licenses in the Smart Licensing environment were displayed with the hostname of the product instance in the Name column. After upgrade to SLP, they are displayed with the UDI of the product instance. All migrated UDIs are displayed.

Figure 2. Smart Licensing to Smart Licensing Using Policy: Product Instances After Migration

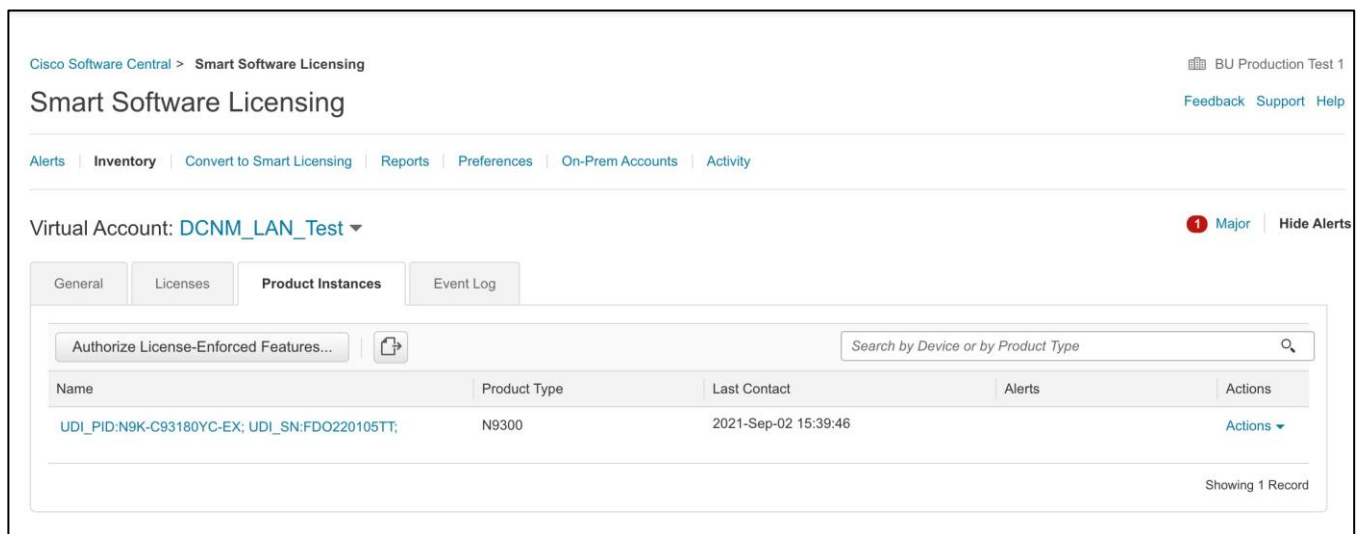


Figure 3. Smart Licensing to Smart Licensing Using Policy: License Usage under Active Product Instance

**UDI\_PID:N9K-C93180YC-EX; UDI\_SN:FDO220105TT;**

**Overview**    Event Log

**Description**  
Nexus 9300 Series Fixed switch

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**General**

Name: UDI\_PID:N9K-C93180YC-EX; UDI\_SN:FDO220105TT;  
 Product: Nexus 9300 Series Fixed switch  
 Host Identifier: -  
 MAC Address: -  
 PID: N9K-C93180YC-EX  
 Serial Number: FDO220105TT  
 UUID: -  
 Virtual Account: DCNM\_LAN\_Test  
 Registration Date: 2021-Sep-02 15:38:59  
 Last Contact: 2021-Sep-02 15:39:46

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**License Usage**

License	Billing	Expires	Required
LAN license for Nexus 9300-XF	Prepaid	-	1
DCNM LAN Adv Nexus9300_XF	Prepaid	-	1

Showing All 2 Records

## Reporting After Migration

The product instance sends the next RUM report to CSSM, based on the policy.

## Task Library: Smart Licensing Using Policy

This section includes tasks performed on a product instance and the CSSM portal.

## Converting Traditional Licenses to Smart Licenses

CSSM allows you to convert traditional licenses to Smart Licenses. For instructions, refer to [Converting Classic Licenses to Smart Licenses](#).

## Obtaining Token from CSSM

To establish trust, you must obtain and enter a valid Registration Token in Cisco Nexus Dashboard Fabric Controller Web UI. To obtain a token from CSSM, perform the following steps:

### Procedure

1. Log in to Cisco Smart Software Manager (CSSM).

2. Choose Cisco Software Central > Smart Licensing > Inventory tab.

3. In Product Instance Registration Token, generate a new token.

A token is required to register product instances, to use licenses from the virtual account.

4. In the Tokens table, click on the correct token, and copy it to your clipboard.

This token is required during Smart License Trust Establishment on Operations > License Management > Smart tab on the Cisco Nexus Dashboard Fabric Controller Web UI.

## Smart Licensing using Policy to Establish Trust with CSSM

Ensure that there is network reachability between Cisco Nexus Dashboard and CSSM. To configure network reachability, launch Cisco Nexus Dashboard Web UI. On the Admin Console, choose Infrastructure > Cluster Configuration > General tab. In Routes area, click the edit icon, and add IP addresses for Data Network Routes. Click Save to confirm.

To establish trust with CSSM using the Smart Licensing using Policy on Cisco Nexus Dashboard Fabric Controller Web UI, perform the following steps:

1. Choose Operations > License Management > Smart tab.

2. Use the Enable Smart Licensing toggle button to enable smart licensing.

3. On the Trust Status card, click Establish Trust.

The Establish Trust for Smart License window appears.

4. Select the Transport option to register Smart License Agent.

The options are:

a. Default - **NDFC communicates directly with Cisco's licensing servers**

This option uses the following URL: <https://smartreceiver.cisco.com/licservice/license>.

b. Proxy - Proxy via intermediate HTTP or HTTPS proxy

Enter the URL and the port if you select this option.

5. In the Token field, paste the token that you have obtained from CSSM.

6. Click Establish Trust.

A message appears as confirmation.

The status changes from UNTRUSTED to TRUSTED. The name, count, and status of switch licenses appear.

Click TRUSTED to see the details. The switch details are updated under the Switches/VDCs section of the License Assignments tab. The license type and the license state of switches that are licensed using the smart license option are Smart.

7. Click NDFC tab.

8. From the Actions drop-down list, select Assign All.

Additional References for Smart Licensing Using Policy

The switches will be registered with Smart License.

9. Click Smart tab.

The Status of the server licenses shows InCompliance.

If the status shows OutofCompliance, visit the CSSM portal to acquire the required licenses.

For all other statuses, contact Cisco Technical Assistance Center (TAC).

## Removing the Product Instance from CSSM

To remove a product instance and return all licenses to the license pool, complete the following task:

### Procedure

1. Log in to the CSSM Web UI at <https://software.cisco.com/> and click Smart Software Licensing.

Log in using the username and password provided by Cisco.

2. Click the Inventory tab.
3. From the Virtual Account drop-down list, choose your Virtual Account.
4. Click the Product Instances tab.

The list of available product instances is displayed.

5. Locate the required product instance from the product instances list. Optionally, you can enter a name or product type string in the search tab to locate the product instance.
6. In the Actions column of the product instance you want to remove, click the Remove link.
7. Click Remove Product Instance.

The license is returned to the license pool and product instance is removed.

## Additional References for Smart Licensing Using Policy

Topic	Document Title
Cisco Smart Software Manager Help	<a href="#">Smart Software Manager Help</a>
Cisco Smart License Utility (CSLU) installation and user guides	<a href="#">Cisco Smart License Utility Quick Start Setup Guide</a> <a href="#">Cisco Smart License Utility User Guide</a>

## Feature History for Smart Licensing Using Policy

This table provides release and related information for features explained in this module.

These features are available on all releases after the one they were introduced in unless noted otherwise.

Release	Feature	Feature Information
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Feature History for Smart Licensing Using Policy

Smart Licensing using Policy for Cisco Nexus Dashboard Fabric Controller, Release 12.1.1e	Smart Licensing Using Policy (SLP)	Smart Licensing Using Policy (SLP) is supported for MDS switches.
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